Methodologies, methods and ethical considerations for conducting research in work-integrated learning

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Over the last 20 years, research focused on work-integrated learning (WIL) has expanded considerably. While early research predominantly utilized quantitative study designs, recently a more diverse set of methodologies is being used to address questions and issues arising from a range of WIL models. This Special Issue is intended to present different methodologies available to WIL researchers. The papers include case studies of how these methodologies, and methods within, are being used for WIL research, along with discussion of the strengths and limitations of using the research approach. Examples of case study methodology, multiple case studies, mixed methods, program evaluation research, hermeneutic phenomenology, grounded theory, reflective practice as research, and large-scale data mining, provide insights into different ways of addressing research questions. In this issue, the advantages and challenges faced by those conducting research as 'insiders' within their own organizations are also examined. Specifically, within this paper the importance of ethical conduct while engaging with research, especially WIL research using human participants, is discussed, including the need to obtain ethical approval and consideration of issues around informed consent, conflict of interest, risk of harm and confidentiality.

Keywords: Work-integrated learning, research methods, methodology, case studies, insider research, research ethics

As work-integrated learning (WIL) models and contexts diversify, there is a need for research to provide a strong evidence base, to further our understanding and help with informed decision making to advance practice (Zegwaard, 2015). In the 1900s, WIL research, and more specifically in cooperative education (co-op) research, the focus was on the pragmatics of the delivery and administration of co-op programs, along with the benefits to stakeholders of participation in co-op (Wilson, 1988). Bartkus and Stull (1997) critiqued the body of published work in cooperative and work-integrated education and commented that there was a real need to conduct more rigorous studies underpinned by theory. In a later review, focused on quantitative research, Bartkus (2007) argued while the studies published made a valuable contribution to the body of knowledge, there were numerous limitations in the research quality. He also noted much of the research was still "descriptive in nature" (p. 63) and lacking in theory-informed critical discussion. Coll and Kalnins (2009), in their examination of interpretive research, echoed similar comments about variability in the quality of research and lack of theory underpinning the research design or the analysis of the results. However, they strongly advocated for researchers to consider the use of qualitative research approaches due to the complexity of WIL contexts and the types of issues WIL researchers needed to investigate.

In 2011, several commentaries on WIL research acknowledged WIL research quality had progressed and that more recent research was grounded in a theoretical base (Bartkus & Higgs, 2011; Coll & Zegwaard, 2011; Zegwaard & Coll, 2011). Researchers were using existing theories (e.g., experiential learning theory, activity theory, socio-cultural theories) and applying these to WIL contexts.

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Increasingly, WIL research is now being published beyond the WIL specific literature and is becoming more common in general and discipline specific educational literature.

The choice of methodology should be determined by the purpose of the research and the nature of the research questions. Other factors, such as the researcher's ability, level of funding/resources, and time availability often influence (appropriately or not) the decision on how a study is designed. While quantitative studies were the basis for most early WIL research, there has been a call to shift towards using multi methods research to best answer a research question (Coll & Chapman, 2000). As researchers sought to understand, improve, and theorize, qualitative research approaches began to be utilized more in WIL research. In a review of research conducted within the *Asia-Pacific Journal of Cooperative Education* from 2000 to 2013, the proportion of studies that were classified as qualitative increased over this time from 9% to be 30% of publications (Zegwaard & Hoskyn, 2015). The classification process was not without challenges, as the terminology used by the researchers was not always correct and multi-staged or 'mixed methods' of data collection combining both quantitative and qualitative methods were becoming more prevalent.

As highlighted earlier by Bartkus (2007) and Coll and Kalnins (2009), researchers need to ensure the WIL research being conducted is 'quality research'. While there are a number of factors that contribute to assessing quality, a key factor is the selection of the methodology and methods, appropriate for the type of research questions that are posed. This special issue is intended to present a range of data collection methods used within different methodologies. Methodology and methods are frequently used terms that are often incorrectly used interchangeably. Lucas, Fleming, and Bhosale (2018), in this special issue present a clear explanation of the differences in these terms. The authors differentiate methodology as being a "frame of reference on which the method of inquiry is based on" (p. 215) whereas, research methods describe the way the data is collected and analyzed. It is important for researchers to communicate clearly the methodology that underpins the study as well as the methods used so that the appropriateness of the research approach applied to the context of the research can be critiqued.

METHODOLOGIES AND METHODS

The articles in this Special Issue illustrate a range of methodologies and methods appropriate for conducting WIL research. The authors describe the principles or philosophy, advantages and limitations and include case studies of their own research to demonstrate key features of the application within a WIL research context.

Case Study Methodology

Lucas et al. (2018) advocate for the use of 'case study' as a methodology as opposed to a method. The authors highlight the benefits of case study methodology as a flexible approach suitable for the evolving nature of WIL. While the authors acknowledge the criticisms of case study research (i.e., too specific, not generalizable, limited contribution to theory), they provide two vignettes illustrating how these criticisms can be addressed in addition to the advantages that this methodology provides. Stake (1995) explains, case study research may focus on one case and provide an in-depth examination and interpretation to understand that particular case (intrinsic case study). Alternatively, a case can be used as an example to provide insights into an aspect or issue (instrumental case study). The vignettes demonstrate the use of intrinsic case studies to explore two different phenomena (in the same WIL context in sport and recreation), using different data collection and analysis methods. An earlier criticism of WIL research was the lack of underpinning theory in the method design and critical analysis

of the data. The examples shared in this article show how the case study approach allowed each of the researchers to explore and underpin the findings with theories that were appropriate for the different research questions. Lucas encourages other researchers to consider the examples presented in this article to help understand the use of case study as a methodology when determining the methodological choices for WIL research.

Multiple-Case Study Approach

Another approach to case study research is collective case studies (Stake, 1995), where multiple cases are used to explore similarities and differences between cases. The second article in this issue by Brink (2018) illustrates the advantages of a multiple-case study design for research on how information can be managed to facilitate the WIL process. It is important for researchers to consider the ontological and epistemological assumptions that underpin interpretive research and in this article Brink (2018) has provided a clear justification for her position. In addition, detailed description is provided of the methodological assumptions and overall research approach as they relate to the multiple case study design.

Mixed Methods Research

As pointed out by Zegwaard and Hoskyn (2015), mixed methods research (using both quantitative and qualitative data collection methods) has become more prevalent in WIL research. Cameron (2018), describes the evolution of, and rationale for, the use of a mixed methods design to explore risk management by university lawyers within the context of WIL. A quantitative survey was conducted initially to deepen understanding of the topic in response to a gap in the literature. In this article, Cameron (2018) critiques and justifies the use of the quantitative survey to inform and develop the research questions that guided the qualitative phase of the study, framed as instrumental case studies. Using data from both methods, he argues that the use of triangulation strengthens the overall research findings which is the key advantage of a mixed methods design. Validity and accuracy are important in ensuring quality research, and examples of strategies are described that may be helpful for other WIL researchers using a mixed methods approach. Cameron (2018) clearly acknowledges the bias inherent in his research (social desirability bias, author bias, and terminology bias (use of the term WIL) and from the lessons he has learnt suggests ways to address these concerns.

Grounded Theory

Grounded theory is described by Bytheway (2018) in her article as "an inductive enquiry that explains social processes in complex real-world contexts" (p. 249). Bytheway (2018) justifies the use of this methodology as appropriate for the complex real-world contexts of WIL where there are multiple influencing factors and complex social behaviors. As an evolving method, the approach to grounded theory research is different from the more traditional research designs. However, the author presents fundamental guidelines in this article to illustrate the research process. A case study provides insights into the use of grounded theory to examine how adults without teaching qualifications learn to teach English to speakers of other languages in the workplace. Bytheway (2018) acknowledges the limitations and constraints of using an inductive methodology, particularly when needing to conform to university protocols. She also argues for more researchers to consider the use of grounded theory, as it provides opportunities, "to explore work-integrated learning from the perspectives of many stakeholders in real-world workplace contexts while remaining open to emerging ideas, explanations and theories" (p. 257).

Hermeneutic Phenomenology Methodology

Hermeneutic phenomenology, is a methodology not commonly used in WIL research. Stephenson, Giles, and Bissaker (2018) describe and justify in their article how hermeneutic phenomenology can be applied to the study of pre-service teachers experiences while on work placement (practicum). The interpretive processes used within this methodology "are not reductionist and very contextual" (p. 270) and provide a way to "uncover meanings and understanding of lived experiences which are then influential in an individual's ongoing professional practice" (p. 270). The authors describe the origins and existential philosophy of this methodology and provide examples of how hermeneutic phenomenology is experienced and undertaken in a WIL context. Aligning with the methodological underpinnings, examples from the authors own research are used to illustrate the presentation of findings through creative story-telling. The criticisms of hermeneutic phenomenology (e.g., a small number of participants and analysis of phenomenological themes rather than emergent themes) are viewed by the authors as limitations that are "prefaced upon a frame of thinking that is not part of the phenomenological method" (p. 270). However, they identify the limitation of the researchers needing to remain immersed in the research over a sustained timeframe and being open to new ways of knowing a phenomenon. Their advice is that "researchers need to become comfortable with the uncomfortable and, for this reason, this method is not for the faint hearted" (p. 270).

Program-Wide Evaluation

Measuring the impact of WIL is an important research focus in order to justify the investment that tertiary providers are placing on this strategy to enhance graduate employability. Rowe, Nay, Lloyd, Myton, and Kraushaar (2018) argue for a holistic approach for program-wide evaluation (the how and the why) as well as measuring the outcomes of WIL for all stakeholders, including partners and community. In their article, through comprehensive review and synthesis of the literature, they critique how WIL has been evaluated in the past, what was evaluated, and the measures used. Their review indicated there has been a strong focus on evaluating student outcomes and the "evaluations undertaken to date have tended to focus on either process or outcomes (but rarely both)" (p. 276-277). Drawing on a case study of an Australian university, the authors describe their framework for a holistic evaluation of a university-wide WIL initiative using a mixed methods approach, collecting data from multiple stakeholders. They situate their approach as "a type of middle ground between research and evaluation (and, thereby, balance the various regulatory requirements" (p. 282). The authors present the opportunities as well as the challenges and tensions that arise when the boundaries between research and evaluation are not clear.

Reflective Practice as a Research Method

Work-integrated learning programs rely on relationships developed with industry and community organizations for the placement of students and industry projects. As described in several case studies presented in this Special Issue, these organizations as stakeholders play an important part as participants in WIL research. Bilous, Hammersley, and Lloyd (2018) suggest that these relationships be seen as broader than merely participants are and instead that they are seen as collaborators of research inquiry. Using reflective practice as a research method, the authors share their experiences in the co-construction of knowledge in a cross-cultural context. The international research partners for their project were from different cultures and a wide variety of professional backgrounds, for example, law, youth and social work, environmental sustainability, Indigenous rights, and community development. The authors describe a variety of modes for reflection as research techniques, and these were used to enable them "to make sense and meaning of the experiences and concepts that their partners wished to share and contribute to a co-created curriculum" (p. 288). They reflect on these

methods trialed within the project and acknowledge that some were successful and others were not. Reflective practice as a research method is a collaborative approach for co-constructing knowledge for WIL researchers to consider.

Large-Scale Data Analytics and Data Mining

Large-scale data mining research in WIL is not yet common because many educational institutions do not have the means to collect large-scale data from their student cohorts or external stakeholders. The number of related examples are thus so far limited, for example, large-scale data mining is limited to performance evaluation (Chien & Chen, 2008), job postings correlation with skills correlation (Aken, Litecky, Ahmad, & Nelson, 2010) and student work placement satisfaction analysis (Jiang, Lee, & Golab, 2015). Several institutions have a long history of centralized and large-scale WIL activities, providing researchers with a valuable dataset where large-scale data mining techniques can be applied. In this Special Issue, Chopra, Golab, Pretti, and Toulis (2018) present the case for large-scale data mining, along with two detailed examples of such practice using a data set collected from a cooperative education program. The first example explores the use of large datasets involving word frequency counts in job descriptions and then analyzing these for either soft or hard skills. This approach demonstrates the strength of being able to partition and summarize large volumes of loosely structured documents. However, the approach also presented the challenge of potential uneven clustering within the dataset affecting the analysis. The second example describes a form of data mining referred to as graph mining. This method attempts to transform large datasets into clusters of nodes and then visualize these through the use of graphs. The key strength of this method is that it's a powerful way of determining relationships within the dataset. However, when a dataset is made of sets of closely related nodes the relationships identified may not always be practically meaningful.

Insider Research

WIL research is frequently conducted to answer questions related to the researchers own program or within their own institution. When the researchers are collecting data from their own students and, colleagues, or examining their own practice, the researchers are deemed to be in the position of an 'insider'. While there are many benefits from being an insider, there are a number of significant issues, challenges, and tensions that exist in relation to the design and implementation of the research. Using a case study narrative, Fleming (2018) acknowledges the main advantage of being an insider is the deep level of understanding and interpretation of the context. However, key challenges include the potential for implicit coercion of the participants, acknowledging the desire for positive outcomes, ensuring tacit patterns and regularities are not taken for granted, and sensitivity to potential conflicts. In this article, strategies to help resolve or minimize the impact of these are presented to help other researchers ensure quality WIL research that contributes to advancing theory and practice can be achieved.

ETHICAL CONSIDERATIONS WHEN CONDUCTING RESEARCH

The Special Issue here has presented insight to a range of methodologies and methods available to WIL researchers along with details example of its practice. However, in addition to the importance of selecting an appropriate research methodology and methods is the importance of the ethical considerations around conducting the research. In this Special Issue, Fleming (2018) highlights some ethical dilemmas commonly encountered as an 'insider researcher', including the power differential and ongoing relationships with participants. It is, however, important to further consider the fundamentals of ethical research involving human participants.

Most WIL research involves human participants; therefore, it is fundamentally important that human research ethics approval has been obtained. It is important that approval has been gained before the commencement of data gathering from human participants because human research ethics committees cannot grant approval for research after the data collection has begun (with three expectations; data was collected for non-research purposes is now proposed to be used for research, data was gathered through a 'chance encounter', and if the data was already publically available, e.g., already published).

Ethical Expectations

The level of attention on ethical conduct (the actions that are personal, professional, and during research activity) has both increased and broadened in response to society's expectation of greater accountability (Haggerty, 2004; Held, 2006; Zegwaard, Campbell, & Pretti, 2017). At many educational institutions, to collect data from human participants for research purposes without ethical approval would place the researcher outside the institutions Staff Code of Conduct (often worded within the requirement of adherence to institutional regulations, which will include the Human Research Ethics regulation). Furthermore, many journals (including IJWIL) adhere to the Committee of Publishing Ethics (CoPE) guidelines that requires editors and publishers to ensure the research was conducted in an ethical manner (Committee of Publishing Ethics, 2006, 2018). Therefore, increasingly journals request evidence of ethics approval, and journal editors are advised to reject submissions where ethics approval was required but not obtained. There is, fortunately, much literature to guide researchers around designing an ethically acceptable research approach, with the work by Denzin and Lincoln (2011) and Berg and Lune (2017) commonly referred to, in addition to many method-specific ethics literature.

Informed Consent

The cornerstone of ethical research is 'informed consent' (Denzin & Lincoln, 2011). The term consists of two important elements, with each requiring careful consideration, that is, 'informed' and 'consent'. Participants must be fully informed of what will be asked of them, how the data will be used, and what (if any) consequences there could be. The participants must provide explicit, active, signed consent to taking part with the research, including understanding their rights to access to their information and the right to withdraw at any point. The informed consent process can be seen as the contract between researcher and the participants.

The aspects of 'informed' should include clear explanation on:

- Who the researcher(s) are,
- What the intent of the research is,
- What data will be collected from participants,
- How the data will be collected from participants,
- What level of commitment is required from participants
- How this data will be used and reported, and
- What are the potential risks of taking part in the research.

The informing aspect of consent is often undertaken using a short, carefully worded information sheet (1.5 - 2 pages is common), using a writing style tailored for the participants and avoiding use of complex academic terminologies. The aspects of consent should clearly include:

- an 'opt in' approach rather than 'opt out' (i.e., active consent instead of passive consent – the latter remains highly contentious),

- information on the right to withdraw at any at any time without reason (including withdrawing data already provided),
- assurances that participant identity will kept confidential,
- clarity of ownership of the data (participants own their raw data, researchers own the analysis data),
- their right to access to their data,
- the right to ask for more information, and
- information of the complaint process (contact details of the researcher along with a line manager, or the chair of the ethics committee).

It is fundamentally important that the information sheet and consent form are robust, clear, and well written. If the information sheet and consent form are unclear, it will result in a weak consent agreement, which may compromise the quality of data collected due to mistrust (Miles & Huberman, 1994) and not provide good protection for the participant or the researcher.

Risk of Harm, Anonymity and Confidentiality

It is important the identity of participants is kept confidential or anonymous and the assurances extend beyond protecting their names to also include the avoidance of using self-identifying statements and information. Anonymity and confidentiality is an important step in protecting the participants from potential harm.

Participant anonymity and participant confidentiality are two terms commonly used synonymously when in fact they are different. Participant anonymity means the participant's identity are unknown to the researcher (e.g., when using anonymous surveys, the participant identity is truly unknown to the researchers). Participant confidentiality means the participant's identity are known to the researcher but the data was de-identified and the identity is kept confidential (e.g., interviews, where the participant identities are known to the researcher, therefore, only confidentiality, not anonymity, can be offered).

The research design needs to consider the potential of harm to the participants, the researcher, the wider community, and the institution. The harm can range from physical, resource loss (including time), emotional, and reputational. When considering the potential for harm, the approach should be, in descending order, to eliminate, isolate, and minimize the risk, with the participants being fully informed on what the risks are.

Conflict of Interest

Existing relationships or prior activities by the researcher can potentially create a conflict of interest that are important to transparently report on within an ethics approval application so the committee can provide guidance on how to manage this conflict of interest. It is common for WIL researchers to conduct research around their institutional WIL programs where the researcher may also have teaching (and assessing) responsibilities and perhaps also line management of staff who are participants in the research (see example of the work by Fleming, 2018). Where the conflict of interest lays around power differential, removing the source of the power differential is the solution. For example, a teacher removes themselves from being an assessor of the student participant's work, the data collection is conducted by a third party who de-identifies the data before making the data available to the researcher, or, the data collection is anonymous (e.g., anonymous surveys) to ensure the teacher does not know who the participant identity. Similarly, it is not uncommon for researchers to have business

interests in addition to their academic activities, however, these activities may impact on research involving external stakeholders with similar business interests.

CONCLUSION

The appropriate choice of methodology and methods is important and must consider the research context, the research question being addressed, and the researcher capability. The articles presented in this Special Issue illustrate a few of the methodology options that researchers have previously used in WIL research, along with detailed case studies that highlight the advantages and limitations of each approach. What is evident is the importance that the methodology and methods align to the purpose of the research and the nature of the research questions. As WIL research often involves human participants, and could potentially involve the researcher's own students and colleagues, the ethical issues must be considered during the design of the research approach, and must be approved by the relevant ethical committee before data collection commences. The ethical issues of informed consent, risk of harm, confidentiality and anonymity, and conflict of interest must be considered and presented with a plan on how these ethical issues will be managed. It is intended that this Special Issue will encourage, enable, and inform further research.

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